

(Effective July 1, 2020)

WAC 51-11C-40351 Section C403.5.1—Integrated economizer control.

**C403.5.1 Integrated economizer control.** Economizer systems shall be integrated with the mechanical cooling system and be configured to provide partial cooling even where additional mechanical cooling is required to provide the remainder of the cooling load. Controls shall not be capable of creating a false load in the mechanical cooling system by limiting or disabling the economizer or any other means, such as hot gas bypass, except at the lowest stage of mechanical cooling.

Units that include an air economizer shall comply with the following:

1. Unit controls shall have the mechanical cooling capacity control interlocked with the air economizer controls such that the outdoor air damper is at the 100 percent open position when mechanical cooling is on and the outdoor air damper does not begin to close to prevent coil freezing due to minimum compressor run time until the leaving air temperature is less than 45°F (7°C).

2. Direct expansion (DX) units with cooling capacity 65,000 Btu/h (19 kW) or greater of rated capacity shall comply with the following:

2.1. DX units that control the capacity of the mechanical cooling directly based on occupied space temperature shall have not fewer than two stages of mechanical cooling capacity.

2.2. Other DX units, including those that control space temperature by modulating the airflow to the space, shall be in accordance with Table C403.5.1.

**Table C403.5.1  
DX Cooling Stage Requirements for Modulating Airflow Units**

| <b>Rating Capacity</b>             | <b>Minimum Number of Mechanical Cooling Stages</b> | <b>Minimum Compressor Displacement<sup>a</sup></b> |
|------------------------------------|----------------------------------------------------|----------------------------------------------------|
| ≥ 65,000 Btu/h and < 240,000 Btu/h | 3 stages                                           | ≤ 35% of full load                                 |
| ≥ 240,000 Btu/h                    | 4 stages                                           | ≤ 25% full load                                    |

For SI: 1 British thermal unit per hour = 0.2931 W.

<sup>a</sup>For *mechanical cooling* stage control that does not use variable compressor displacement, the percent displacement shall be equivalent to the mechanical cooling capacity reduction evaluated at the full load rating conditions for the compressor.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40351, filed 11/26/19, effective 7/1/20.]